Space Weather Forecast

Issued on Thursday, 20 October 2022 at 01:15 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: No significant activity.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity over the past 24 hours has been Low, with occasional low level C-class flares, the largest a moderate size Common-class flare at 19/2145UTC from a developing bi-polar region in the southeast quadrant. This is the most significant of the two numbered and one un-numbered region currently on the visible disc.

No Earth directed CMEs were visible on available satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind decreased as Earth transitioned into a slow wind environment. Speeds fell from around 480 km/s to near 400 km/s. The total magnetic field strength remained weak, with the north-south component unremarkable. Geomagnetic activity was Quiet (Kp 0-2) throughout the period

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is most likely to continue Low, with a slight chance of an isolated M-flare.

Solar Wind / Geomagnetic Activity: There are currently no Earth-directed CMEs expected. Solar winds near background levels may experience a slight enhancement through days 1 to 2 (20th to 21st) due to any residual fast wind from a now closed coronal hole. A further enhancement is possible towards the end of the period due to the influence of a larger southern coronal hole, although this is low confidence. Geomagnetic activity is expected to be mainly Quiet, occasionally Unsettled, days 1 to 2 (20th to 21st), perhaps with a slight chance of isolated Active intervals. There is then a chance of activity increasing to Unsettled to Active, with a slight chance of isolated G1/Minor Storm intervals, by the end of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	5	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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